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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/659,821	09/11/2000	Yutaka Ikushima	197240US0	5767
22850	7590	10/22/2003		
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			EXAMINER OH, TAYLOR V	
			ART UNIT	PAPER NUMBER
			1625	
			DATE MAILED: 10/22/2003	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Applicant(s)

09/659,821

Applicant(s)

IKUSHIMA ET AL

Examiner

Taylor Victor Oh

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 9/26/2003 has been entered.

The Status of Claims:

Claims 1-20 are pending.

Claims 1-20 have been rejected.

DETAILED ACTION

Priority

1. It is noted that applicants have satisfied the requirement of 35 USC 119(b) by filing priority document ,JP 11-259549, Sept. 13, 1999. However, such information should be inserted in page 1 of the specification immediately following the title.

Drawings

2. The drawing filed on 01//24/2003 are accepted by the Examiner.

Claim Rejections - 35 USC § 112

Claims 3-6 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for benzaldehyde for an aldehyde, benzyl alcohol for an alcohol, and benzoic acid for a carboxylic acid does not reasonably provide enablement for all the aldehydes, the alcohols, and the carboxylic acids. For example, all the possible aldehydes include solid aldehydes, aliphatic ring aldehydes, heteroaryl, and heterocyclic aldehydes, which are not enabled. "Foreman factors" necessarily arise because of unpredictability. In addition, large molecular weight heterocyclic aldehydes behave more differently than those of the claimed invention, which would require more than routine experimentation. See *In re Armbruster* 185 USPQ 204 (CCPA 1985) and *Angstadt et al.*, 190 USPQ 152 (CCPA 1990).

Furthermore, the instant specification fails to provide information that would allow the skilled artisan to practice the instant invention without undue experimentation. Attention is directed to *In re Wands*, 8 USPQ2d 1400 (CAFC 1988) at 1404 where the court set forth the eight factors to consider when assessing if a disclosure would have required undue experimentation, citing *Ex Parte Forman*, 230 USPQ 546 (BdApls 1986) at 547 the court recited eight factors:

- 1) the quantity of experimentation necessary,
- 2) the amount of direction or guidance provided,
- 3) the presence or absence of working examples,

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- 4) the nature of the invention,
- 5) the state of the prior art,
- 6) the relative skill of those in the art,
- 7) the predictability of the art, and
- 8) the breath of the claims.

In the instant case, the claims encompass multi-various aldehydes. However, applicants' specification provide only particular exemplified compounds, such as benzaldehyde for an aldehyde, benzyl alcohol for an alcohol, and benzoic acid for a carboxylic acid. These compounds can be not the representatives of all the possible aldehydes known in the art of organic chemistry. Thus, the specification herein have failed to provide sufficient working examples to support the use of multi-various aldehydes as starting materials in the organic synthesis of Cannizzaro reaction or Beckmann Rearrangement. Therefore, an appropriate correction is required.

Claim Rejections - 35 USC § 103

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation

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under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over An et al (Applications of High-Temperature Aqueous Media for synthetic Organic Rxns, J. Org. Chem. 1997, 62, 2505-2511).

An et al discloses applications of high-temperature aqueous media for synthetic organic reactions such as a Cannizzaro reaction (see page 2506, the second column, lines 57-58) in which benzaldehyde has generated benzoic acid and benzyl alcohol (see page 2507, table 1, example # 36). The reference has indicated that the reaction conditions are near supercritical water of 374 °C and at the pressure of 50

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atmospheres (see pages 2510 ,lines 11-13) at a reaction time of 10 mins (see page 2509, lines 1-2). In addition, it has been found that the superheated water can react in the organic reactions; furthermore, it emphasizes that other potential benefits from high-temperature aqueous media include no addition of catalyst (see page 2507, from line 9 of the first col. to line 3 of the second col.).

However, the instant invention differs from the reference in that the reaction is performed in the pressure range from 22.5 to 25 Mpa.

Concerning the pressure range from 22.5 to 25 Mpa, the claimed ranges and the prior art do not overlap. However, the limitation of a process with respect to ranges of pH, time, and pressure does not impart patentability to a process when such values are those which would be determined by one of ordinary skill in the art in achieving optimum operation of the process. Pressure is well understood by those of ordinary skill in the art to be a result-effective variable, especially when attempting to control selectivity of a chemical process.

An et al does teach the applications of high-temperature aqueous media for Cannizzaro reaction in which benzaldehyde has generated benzoic acid and benzyl alcohol near supercritical water of 374 °C and under pressures of 50 atmospheres at a reaction time of 10 mins. Regarding the pressure, the claimed ranges and prior art do not overlap; even so, pressure is well-understood by those of ordinary skill in the art to be a result-effective variable, especially when attempting to control selectivity of a chemical process. Therefore, it would have been obvious to the skillful artisan in the art

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to have motivated to modify the reaction pressure to the claimed pressure range in the An et al method by a routine experimentation in order to optimize the selectivity of Cannizzaro reaction.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Taylor Victor Oh whose telephone number is 703-305-0809. The examiner can normally be reached on 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alan Rotman can be reached on 703-308-4698. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1235.

